

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Cancelled)

2. (Cancelled)

3. (Previously Presented) The operating unit according to Claim 11, further comprising reference value setting means provided in the vehicle by which said reference value corresponding to said target traveling speed is set, and wherein the automatic braking device is operated according to the reference value set by the reference value setting means based on the control signal.

4. (Previously Presented) The operating unit according to Claim 11, further comprising traveling speed detection means provided in the vehicle for detecting said actual traveling speed of the vehicle based on the control signal and outputting an output signal so as to operate the automatic braking device until the output signal reaches a value corresponding to the target traveling speed of the vehicle.

5. (Previously Presented) The operating unit according to Claim 11, wherein said detection means comprises temperature detection means for detecting that an atmospheric temperature reaches a given temperature indicating said danger state and outputting said detection signal.

6. (Cancelled)

7. (Cancelled)

8. (Previously Presented) The operating unit according to Claim 12, wherein said detection means comprises at least one temperature detection means for detecting that an atmospheric temperature reaches a given temperature indicating said danger state and outputting said detection signal.

9. (Previously Presented) The operating unit according to Claim 8, wherein the temperature detection means is provided in a vehicle tunnel.

10. (Previously Presented) The operating unit according to Claim 9, wherein the transmitter is provided at one of a position of an opening portion serving as an approach to the tunnel and a position remote from the opening portion by a given distance.

11. (Currently Amended) In an operating unit for a vehicle traveling on a road which said vehicle has an automatic braking device that includes a manual actuator where braking is produced in wheel brakes by operation of said manual actuator by a vehicle operator, said operating unit comprising:

at least one detection means provided adjacent to the road for detecting a danger state and outputting a detection signal based on detection of said danger state;

a transmitter provided adjacent to the road which receives said detection signal and transmits a transmitter signal formed of an electromagnetic wave based on the detection signal;

a receiver provided on said vehicle which receives said transmitter signal and outputs a control signal based on reception of the transmitter signal outputted by the transmitter;

said automatic braking device receiving said control signal and operating an antilock control device of said

vehicle independent of additional transmitter signals being received from said transmitter, said automatic braking device being operated based on receipt of the control signal in order to operate an automatic brake wherein a braking fluid is obtained by driving a pump of said automatic braking device to supply said braking fluid to wheel brakes provided in at least a pair of right and left wheels to produce a braking force, so that said antilock control device is operable during the operation of the automatic braking device; and

a reference value corresponding to a target traveling speed ~~which is being~~ set inside the vehicle, ~~such that and~~ said automatic braking device ~~is being~~ actuated independent of said manual actuator based on receipt of said control signal wherein when an actual traveling speed of the vehicle exceeds said target traveling speed for the vehicle after the control signal is received, the automatic braking device ~~operates with reference to~~ repeatedly compares said actual traveling speed with said set reference value and operates with reference to this repeated comparison to automatically reduce the actual traveling speed to the set target traveling speed by the operation of the automatic braking device.

12. (Currently Amended) In a vehicle operating unit for a vehicle traveling on a road which said vehicle has an automatic braking device that includes a manual actuator where braking is produced in wheel brakes by operation of said manual actuator by a vehicle operator, said operating unit comprising:

at least one detection means provided adjacent to the road for detecting a danger state and outputting a detection signal based on detection of said danger state;

a transmitter provided adjacent to the road which receives said detection signal and transmits a transmitter signal formed of an electromagnetic wave based on the detection signal;

a receiver provided on said vehicle which receives said transmitter signal and outputs a control signal based on reception of the transmitter signal outputted by the transmitter;

said automatic braking device receiving said control signal and operating an antilock control device of said vehicle, said automatic braking device being operated based on receipt of the control signal in order to operate an automatic brake wherein a braking fluid is obtained by driving a pump of said automatic braking device to supply said braking fluid to wheel brakes provided in at least a pair of right and left wheels to produce a braking force;

a reference value corresponding to a target traveling speed which is set inside the vehicle such that said automatic braking device is actuated independent of said manual actuator based on receipt of said control signal wherein when an actual traveling speed of the vehicle exceeds said target traveling speed for the vehicle after the control signal is received, the automatic braking device ~~operates with reference to~~ repeatedly compares said actual traveling speed with said set reference value and operates with reference to this comparison to automatically reduce the actual traveling speed to the set target traveling speed by the operation of the automatic braking device; ~~and~~

an alarm unit being provided which generates an alarm to the inside of the vehicle based on the control signal outputted by the receiver based upon receipt of said transmitter signal transmitted from said transmitter.

13. (Currently Amended) In a vehicle adapted to travel on a road, said vehicle comprising a brake system including an automatic braking device and individual wheel brakes which are provided in wheels of the vehicle, said vehicle including a manual actuator within a compartment of the vehicle which is connected to said brake system and is operable by an operator of the vehicle to effect manual operation of the brake system,

the improvement comprising an operating unit for said vehicle to automatically reduce an actual traveling speed of said vehicle during emergency conditions, said operating unit comprising at least one detection means provided adjacent to a road for detecting a danger state within said road, said detection means outputting a detection signal based on detection of said danger state, a transmitter provided on said road which receives said detection signal and transmits a transmitter signal along said road to vehicles traveling thereon, a receiver being provided within said vehicle which receives said transmitter signal and outputs a control signal based on reception of said transmitter signal, an automatic braking device being provided on said vehicle to effect actuation of said wheel brakes independent of said manual actuator within said vehicle, said automatic braking device being connected to said receiver to receive said control signal and based on receipt of said control signal to effect actuation of at least one of said wheel brakes to produce a braking force in said wheels depending upon the presence of said danger state, said automatic braking device including a target speed setting device in which is set a target traveling speed for said vehicle, ~~such that actuation of said automatic braking device~~ being automatically actuated based on receipt of said control signal and repeatedly comparing said actual traveling speed with said set target traveling speed to produce ~~produces said braking force which reduces and thereby reduce~~ reduce said actual traveling speed to said set target traveling speed automatically based on receipt of said control signal and independently of said manual actuator.

14. (Currently Amended) The operating unit according to Claim 13, wherein said target speed setting device permits setting of a reference value which corresponds to said set target traveling speed, said automatic braking device being operated according to said reference value to reduce said actual traveling speed to said set target traveling speed.

15. (Currently Amended) The operating unit according to Claim 14, further comprising traveling speed detection means provided in said vehicle which detect said actual traveling speed of said vehicle and output an output signal to said automatic braking device to permit reduction of said actual traveling speed to said set target traveling speed.

16. (Currently Amended) An operating unit for a vehicle traveling on a road, which said vehicle has an automatic braking device that includes a manual actuator where braking is produced in wheel brakes by operation of said manual actuator by a vehicle operator, said operating unit comprising:

at least one detection means provided adjacent to the road for detecting a danger state and outputting a detection signal based upon detection of said danger state;

a transmitter provided adjacent to the road which receives said detection signal and transmits a transmitter signal formed of an electromagnetic wave based on said detection signal;

a receiver provided within said vehicle which receives said transmitter signal and outputs a control signal based upon reception of said transmitter signal outputted by said transmitter;

said automatic braking device being operated based on receipt of the control signal in order to operate an automatic brake which produces a braking force in at least one wheel brake within a plurality of wheel brakes provided in a plurality of wheels;

a reference value corresponding to a target traveling speed which is set inside the vehicle such that said automatic brake is actuated independent of said manual actuator based on receipt of said control signal wherein when an actual traveling speed of the vehicle exceeds said set target traveling speed for the vehicle after the control signal is

received, said automatic braking device automatically operates  
~~with reference to said reference value~~ independent of  
continued receipt of additional transmitter signals from said  
transmitter, ~~to said automatic braking device repeatedly~~  
comparing said actual traveling speed with said set reference  
value and automatically reduce-reducing said actual traveling  
speed to said set target traveling speed by operation of said  
automatic braking device; and

when said actual traveling speed of the vehicle is less  
than said set target traveling speed after said control signal  
is received, said automatic braking device does not operate.

17. (Previously Presented) The operating unit according  
to Claim 16, wherein said transmitter signal is provided at  
one of a position of an opening portion serving as an approach  
to the tunnel and a position remote from the opening portion  
by a given distance.

18. (Previously Presented) The operating unit according  
to Claim 16, wherein said transmitter signal indicates the  
presence of the danger state and said automatic braking device  
automatically reduces said actual traveling speed based on the  
presence of the danger state.

19. (Currently Amended) A vehicle operating unit for a  
vehicle traveling on a road which said vehicle has an  
automatic braking device that includes a manual actuator where  
braking is produced in wheel brakes by operation of said  
manual actuator by a vehicle operator, said operating unit  
comprising:

at least one detection means provided adjacent to the  
road for detecting a danger state and outputting a detection  
signal based upon detection of said danger state;

one or more transmitters provided adjacent to the road  
which receive said detection signal and transmit a transmitter

signal formed of an electromagnetic wave based on the detection signal;

a receiver provided within the vehicle which receives said transmitter signal from at least one of said transmitters and outputs a control signal based upon reception of said transmitter signal outputted by said transmitter;

said automatic braking device receiving said control signal and being operable based on receipt of said control signal outputted by said receiver in order to operate an automatic brake which produces a breaking force in at least one wheel brake within a plurality of wheel brakes provided in a plurality of wheels;

a reference value corresponding to a target traveling speed which is set inside the vehicle such that said automatic braking device is actuated based on receipt of said control signal wherein when an actual traveling speed of the vehicle exceeds a said set target traveling speed for the vehicle after said control signal is received, said automatic braking device ~~operates with reference to~~ repeatedly compares said actual traveling speed with said set reference value and operates with reference to this comparison to automatically reduce said actual traveling speed to said set target traveling speed by operation of the automatic braking device independent of said manual actuator, and when said actual traveling speed of the vehicle is less than said set target traveling speed after said control signal is received, said automatic braking device does not operate; and

a sound unit being provided which can generate a sound to an interior of the vehicle based on receipt of said control signal outputted by said receiver, which said control signal is based upon receipt of said transmitter signal transmitted from at least one of said transmitters.

20. (Previously Presented) The operating unit according to Claim 19, wherein the transmitter is provided at one of a position of an opening portion serving as an approach to the

tunnel and a position remote from the opening portion by a given distance.

21. (Previously Presented) The operating unit according to Claim 19, wherein said transmitter signal indicates the presence of the danger state and said automatic braking device automatically reduces said actual traveling speed based on the presence of the danger state.

22. (Currently Amended) An operating unit for a vehicle traveling on a road, which said vehicle has an automatic braking device, said operating unit comprising:

a receiver provided within said vehicle which receives a transmitter signal outputted by a transmitter and outputs a control signal based upon reception of the transmitter signal;

said automatic braking device being operated based on receipt of the control signal in order to initiate operation of an automatic brake which produces a braking force in at least one wheel brake within a plurality of wheel brakes provided in a plurality of wheels; and

wherein a reference value corresponding to a target traveling speed is set inside the vehicle such that said automatic braking device is actuated based on receipt of said control signal, and wherein when an actual traveling speed of the vehicle exceeds a said set target traveling speed for the vehicle after the control signal is received, the automatic braking device repeatedly compares the actual traveling speed with said set target traveling speed and operates said automatic brake with reference to said reference value to automatically reduce the actual traveling speed to the set target traveling speed by the operation of the automatic braking device without requiring receipt of additional transmitter signals by said receiver after operation of said automatic brake has been initiated by receipt of said transmitter signal; and

when said actual traveling speed of the vehicle is less than the set target traveling speed for the vehicle after the control signal is received, the ~~automatic braking device does not operate~~comparison is ended.

23. (Previously Presented) The operating unit according to Claim 22, wherein the transmitter is provided at one of a position of an opening portion serving as an approach to the tunnel and a position remote from the opening portion by a given distance.

24. (Previously Presented) The operating unit according to Claim 22, wherein said transmitter signal indicates the presence of a danger state adjacent the roadway and said automatic braking device automatically reduces said actual traveling speed based on the presence of the danger state.

25. (Currently Amended) In an operating unit for a vehicle traveling on a road, said vehicle having wheel brakes for wheels thereof and an automatic braking device that includes a manual actuator such that said vehicle is driven on said road under the manual control of an operator during non-emergency conditions and braking is produced in said wheel brakes by operation of said manual actuator by said operator, said automatic braking device being further adapted to automatically brake said wheel brakes to avoid a danger state before said danger state is physically detected by said operator without requiring braking through said manual control of said operator, said operating unit comprising:

at least one detection means provided adjacent to the road at a predefined location for detecting a danger state in the road and outputting a detection signal based on detection of said danger state;

a transmitter which receives said detection signal and transmits a transmitter signal formed of an electromagnetic

wave based on the detection signal which indicates the presence of said danger state;

a receiver provided on said vehicle which receives said transmitter signal and outputs a control signal based on reception of the transmitter signal outputted by the transmitter, said control signal indicating that said automatic braking device is to be operated;

said automatic braking device receiving said control signal and thereby operating an antilock control device of said vehicle to brake said vehicle in response to the presence of said danger state, said automatic braking device being operated as a result of receipt of the control signal in order to operate ~~an automatic brakes~~ said antilock control device wherein a braking fluid is supplied to said wheel brakes by driving a pump of said automatic braking device and said wheel brakes are provided in at least a pair of right and left wheels of said wheels to produce a braking force such that said antilock control device is operable during the operation of the automatic braking device; and

a reference value corresponding to a target traveling speed being stored inside the vehicle wherein said target traveling speed allows said vehicle to avoid said danger state and wherein said automatic braking device repeatedly compares an actual traveling speed with said stored reference value after said transmitter signal is received such that, when an actual traveling speed of the vehicle exceeds said target traveling speed for the vehicle after the control signal is received, the automatic braking device operates with reference to the repeated comparison of said actual traveling speed with said stored reference value to automatically reduce the actual traveling speed to the target traveling speed without requiring braking by said operator or receipt of additional transmitter signals.

26. (Currently Amended) In a vehicle adapted to travel on a road, said vehicle comprising a brake system including an

automatic braking device and individual wheel brakes which are provided in wheels of the vehicle, said vehicle including a manual actuator within a passenger compartment of the vehicle which is connected to said brake system, said manual actuator being operable by a vehicle operator in said compartment to effect manual operation of the brake system while driving in a roadway wherein said vehicle is driven manually during non-emergency conditions under the control of the operator, the improvement comprising an operating unit for said vehicle to automatically reduce an actual traveling speed of said vehicle during emergency conditions, said operating unit comprising at least one detection means provided adjacent to a road at a predefined location for detecting a danger state within said road before said operator detects said danger state, said detection means outputting a detection signal based on detection of said danger state, a transmitter provided on said road which receives said detection signal and transmits a transmitter signal along said road for vehicles traveling thereon, a receiver being provided within said vehicle which receives said transmitter signal and outputs a control signal based on and after reception of said transmitter signal, an automatic braking device being provided on said vehicle to effect actuation of said wheel brakes independent of said manual actuator within said vehicle, said automatic braking device being connected to said receiver to receive said control signal wherein said control signal indicates that said automatic braking device is to be operated and as a result of receipt of said control signal, ~~to said automatic braking device initiate~~ initiates and ~~continue~~ continues actuation of at least one of said wheel brakes without requiring actuation of said manual actuator or receipt of additional transmitter signals to produce a braking force in said wheels depending upon the presence of said danger state, said automatic braking device including a target speed setting device in which is stored a target traveling speed for said vehicle to which said vehicle will be braked to avoid said danger state, wherein

said automatic braking device repeatedly compares said actual traveling speed with said stored target traveling speed and continues to actuate said wheel brakes ~~based on receipt of said control signal with~~ reference to this comparison to automatically produce said braking force until said actual traveling speed is reduced to said target traveling speed.

27. (New) An operating unit for a vehicle comprising:  
a vehicle device operated by an operation signal;  
a receiver adapted to receive a transmitter signal formed of an electromagnetic wave, said receiver being provided within the vehicle and outputting a control signal upon receipt of said transmitter signal;  
a reference value setting means provided within the vehicle for setting a reference value corresponding to a target traveling speed of the vehicle;  
a vehicle speed detection means provided within the vehicle which detects the actual traveling speed of the vehicle and outputs a vehicle speed signal;  
said operating unit being adapted to repetitively compare the reference value set inside the vehicle with the vehicle speed signal based on the control signal outputted from the receiver so as to improve safety of the vehicle;  
wherein when the actual traveling speed of the vehicle exceeds the target traveling speed, the repetitive comparison between the reference value and the vehicle speed signal is implemented and the operation signal is issued to operate said vehicle device, while when the actual traveling speed of the vehicle is less than the target traveling speed, the comparison between the reference value and the vehicle speed signal by the operating unit is ended.

28. (New) An operating unit for a vehicle according to Claim 27, wherein the vehicle device can apply brakes at least to one wheel brake by the operation signal.

29. (New) A vehicle operating unit for a vehicle traveling on a road which said vehicle has a vehicle device operated by an operation signal, said operating unit comprising:

a transmitter provided adjacent to the road for transmitting a transmitter signal formed of an electromagnetic wave;

a receiver provided within the vehicle which outputs a control signal upon receipt of the transmitter signal formed of the electromagnetic wave;

a reference value setting means provided within the vehicle for setting a reference value corresponding to a target traveling speed of the vehicle;

a vehicle speed detection means provided within the vehicle which detects an actual traveling speed of the vehicle and outputs a vehicle speed signal;

said operating unit repeatedly comparing the reference value set inside the vehicle with the vehicle speed signal based on the control signal outputted from the receiver upon receipt of the transmitter signal so as to improve safety of the vehicle; and

wherein when the actual traveling speed of the vehicle exceeds the target traveling speed, the repetitive comparison between the reference value and the vehicle speed signal is implemented and the operation signal is issued, while when the actual traveling speed of the vehicle is less than the target traveling speed, the comparison between the reference value and the vehicle speed signal is ended.

30. (New) A vehicle operating unit for a vehicle according to Claim 29, wherein the vehicle device applies brakes at least to one wheel brake by the operation signal.